Ocean-going vessel, particularly passenger ship

The invention relates to an ocean-going vessel, particularly a passenger ship, the hull of which has at least one overhang above the waterline, which overhang allows the ship's length to exceed a dimension that is permissible on the basis of location-related length restrictions.

Location-related length restrictions must be observed in order to pass through canal locks, for example. Ocean-going vessels that must adhere to these dimensions necessarily have a lower carrying capacity than ships that exceed maximum dimensions that are permissible for passing through the shipping route, in each instance, for example the Panama Canal. Therefore, adherence to the "Panamamax dimensions," for example, means that the operator of an ocean-going vessel that is supposed to use the Panama Canal must accept the economic disadvantages of predetermined limits of the carrying capacity of the ocean-going vessel in question.

In the case of passenger ships, in particular, the number of passengers that can be carried is the essential

criterion for efficiency considerations on the part of the shipowner. However, the passenger capacity of a passenger ship, particularly of a cruise ship that occasionally uses the Panama Canal or another shipping route having corresponding length restrictions is set at an upper limit due to the restrictions concerning permissible dimensions.

It is true that an efficient and practical increase in the passenger capacity, while simultaneously adhering to the location-related length restrictions, would be possible by reducing the dimensions of the cabins or other areas intended for passenger use. While the number of cabins and thereby the number of passengers who could be accommodated would increase, this would result in reduced luxury for the individual passenger, and specifically this reduced luxury could result in a decreased demand and fewer trip bookings for the passenger ship in question.

The invention is based on the task of configuring an ocean-going vessel in such a manner that it has a higher passenger capacity despite adhering to the location-related length restrictions, specifically without reducing the luxury that is usual on cruise ships, which today's passengers expect and are used to.

This task is accomplished, in the case of an ocean-going vessel, by means of the characteristics of claim 1. Further developments and advantageous embodiments are contained in the dependent claims.

According to the invention, for the purpose of maintaining the carrying capacity of the ocean-going vessel, the part of the overhang of the stem that makes up the excess length beyond the permissible length for traffic on shipping routes having location-related length restrictions forms at least one structural unit that can be reversibly handled to be flipped away, taken away, or the like, as needed.

The ocean-going vessel configured according to the invention can have a length dimension that advantageously exceeds the permissible maximum length for the shipping route in question, with an advantageous increase in the passenger capacity in comparison with the passenger capacity of a passenger ship that adheres to the permissible ship length. In particular, this increase in passenger capacity is present without having to accept restrictions in the luxury provided to the passengers.

According to the invention, the entire part of the overhang that makes up the excess length that goes beyond the permissible length dimension of the passenger ship is flipped away or removed before the ship enters a first lock, for example of the Panama Canal. This is possible because the part is configured as a structural unit that can be reversibly handled.

After the part has been flipped away or removed, the passenger ship has been shortened to the length permissible for the Panama Canal.

The configuration of the stem as a structural unit that can be reversibly handled can already be provided during the construction of a new passenger ship. However, it is also possible, with particular advantage, to add such equipment subsequently, to ships that are already in service. Such passenger ships would thereby be made suitable, after the fact, for travel on shipping routes with location-related length restrictions, such as the Panama Canal. In particular, the invention allows the shipowner of a cruise ship to subsequently increase the capacity of his/her passenger ship that is already in use, by extending the length of the passenger ship by means of a segment that is

set in between, for example a segment set into the middle of the ship. Such a passenger ship, subsequently increased in length with regard to passenger capacity, would normally lose the permissibility for passing through a shipping route having location-related length restrictions, e.g. the Panama Canal. However, by means of the solution according to the invention, with the structural unit that can be reversibly handled to optionally shorten the ship length, it is possible to equalize or compensate the increase in length dimension resulting from the extension segment placed in between, by means of flipping away or removing the bow that is configured as a structural unit that can be reversibly handled.

The part of the overhang that makes up the excess length beyond the permissible length can be flipped away, for example, in such a manner that it comes to rest on the remaining region of the foredeck. However, it is also possible to remove it, for example with a hoist. The removed structural unit can also be set down, for example on the foredeck, by means of the hoist.

For example, a crane that stands on land can lift the structural unit, which has already been released from the

hull, if necessary, and set it down on the foredeck, before the ship runs into a first lock, for example of the Panama Canal, so that the ocean-going vessel carries the structural unit with it during its passage through the Panama Canal. After the ship has passed through the canal, the structural unit, which has been carried on the ship, can be set back into the stem of the ocean-going vessel, using a suitable hoist.

The structural unit that can be handled is a bow segment that is fitted into the ship's hull in such a manner that the front edges of the stem of the hull and bow segment, which make up the rake of the stem, as well as the surfaces of the segment and the outer skin that forms the ship's side, align with one another in the normal position, in which the ship's length exceeds the length that is permissible for passing through the shipping route in question, e.g. the Panama Canal. As soon as the structural unit has been taken away or flipped for the purpose of reducing the ship's length, the stem consists only of the stem segment integrated into the hull. Only when the segment has been fitted into the hull again, in other words when it sits back in its normal position after having been removed or flipped away, do the front edges of the stem and

the inserted bow segment form a line that corresponds to the alignment of the stem, i.e. the structural unit according to the invention, the bow segment, is then completely integrated into the hull once again.

The ocean-going vessel configured with the structural unit according to the invention is advantageously characterized also in that it has at least one transverse bulkhead that closes off the ship's hull, in the region of the face that faces the structural unit that can be handled. This produces the result that the ship's hull, i.e. the ocean-going vessel according to the invention, will remain absolutely seaworthy even after the structural unit that can be handled has been flipped away or removed. Even if the structural unit is not set onto the ocean-going vessel, it does not lose its seaworthiness. A passenger vessel could therefore easily travel the Atlantic even without the structural unit set onto the front; this is because the transverse bulkhead is integrated into its outer skin.

In order to be able to handle the structural unit for the purpose of removing it, it is equipped with fittings for setting on load accommodation means of corresponding hoists. Suitable fittings can be crane eyes, for example.

If the structural unit is structured to be flipped away, working cylinders that can be activated for flipping it away can be provided, which can act on a corresponding steering linkage by way of which the flipping movement of the structural unit is brought about.

The structural unit and the ship's hull are preferably equipped with locking means that can mutually be brought into a working connection. Using the locking means, the structural unit can be securely held in place on the ship's hull in the normal position in which the structural unit is integrated into the bow, i.e. into the stem.

The locking means can be equipped with remote controls that can be optionally activated, and can be operated, for example, from the bridge of the ocean-going vessel, in order to initiate the flip-away or removal process, or to bring about engagement after the structural unit has been set into place again.

An exemplary embodiment of the invention, from which other inventive characteristics are evident, is shown in the drawing. This shows:

Fig. 1 the front end of an ocean-going vessel in a side view, and

Fig. 2 the front end of an ocean-going vessel according to Fig. 1, but with the bow tip flipped away according to the invention, here flipped back and laid down.

Fig. 1 shows the front part of a passenger ship in a side view. The hull 1 of the passenger ship has an overhang above the waterline, i.e. the front edge 2 of the stem 3 runs at a slant to the back with the rake of the bow tip 4 of the ship's hull 1 that can be seen here, up to the transition into the underwater part 5 of the ship's hull 1. The ship's length is measured from the bow tip 4 to the outermost end of the stern of a ship, which is not visible here, which length is not allowed to exceed a dimension permissible for a shipping route having a location-related length restriction, such as the Panama Canal. In the exemplary embodiment according to Fig. 1, the overhang of the stem results in an excess length of the ship, beyond the permissible dimension. This excess length corresponds

to the dimension between the frontmost end point 6 of the bulbous bow 7 that is located underwater, and the bow tip 4.

The passenger ship shown here is characterized by the configuration of the part of the overhang of the stem 3 that makes up the excess length as at least one structural unit that can be handled by means of flipping it away, removing it, or a similar measure, as needed.

The structural unit 8 carries a folding mast 8 for the forestay 10.

Fig. 2 shows the front part of the passenger ship, whereby the structural unit 8 is now shown in its flipped-back position, as compared with Fig. 1. The structural unit 8 can be flipped back into the position shown here about articulations that define a horizontal axis 11, by means of drive means that are not shown in detail here, such as hydraulic cylinders and connecting rods. The forestay 10 is disassembled for the time of passing through the shipping route in question, e.g. the Panama Canal, and the folding mast 9 is laid down.

Fig. 2 makes it clear that a shortening of the ship's length has taken place as a result of flipping back the structural unit 8 about the horizontal axis 11, specifically to a length that does not go beyond the permissible dimensions on the basis of location-related length restrictions.